

S/N: 10/709,116  
Reply to Office Action of September 22, 2004

Atty Dkt No. 81100112 / FMC 1694 PUS1

### Amendments to the Drawings

The attached sheet(s) of drawings includes changes to Fig. 1. This sheet, which includes Fig. 1, replaces the original sheet(s) including Figs. 1.

Attachment: Replacement Sheet

### Remarks

In response to the non-final Office Action mailed September 22, 2004, the Applicants respectfully requests reconsideration of the rejections and that the case pass to issue in light of the amendments above and the remarks below. By this paper, claims 1, 10, 11, 16, and 17 have been amended, claims 25 and 26 are added, and no claims have been canceled. As such, claims 1-21, 25 and 26 are pending and claims 22-24 are withdrawn.

The Examiner is objecting to Figure 1 for failing to include a prior art label. The Examiner is issuing the following rejections: claims 1-7, 10-12, and 16-18 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,637,974 to McCann (hereinafter the McCann patent); claims 8 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the McCann patent; and claims 13-15 and 19-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the McCann patent in view of U.S. Patent No. 6,073,713 to Brandenburg (hereinafter the Brandenburg patent).

#### Objection To Figure 1

Applicants respectfully submit the objection to Figure 1 is obviated in light of the corrected drawing sheet submitted herewith. In particular, Figure 1 has been amended to recite the label of prior art.

#### **Rejection of Claims 1-7, 10-12, and 16-18** **Under 35 U.S.C. § 102(b) Over the McCann Patent**

The rejection to claims 1-7, 10-12, and 16-18 under 35 U.S.C. § 102(b) apply to independent claims 1, 10, and 16. These are the only pending independent claims. Each independent claim includes limitations generally related to operating an electric motor using a sensorless control system if the electric motor rotational speed is above a predetermined threshold and operating the electric motor using a sensor based control system if the electric motor rotational speed is below a predefined threshold. For the reasons set forth below in

more detail, the Applicants respectfully submit that the McCann patent fails to anticipate these limitations of the pending independent claims. Consequently, the Applicants respectfully submit that independent claims 1, 10, and 16 are patentable and nonobvious over the cited reference, and dependent claims 2-7, 11, 12, 16 and 18, which depend therefrom and include all the limitations thereof, are patentable for at least the same reasons that the independent claims from which they depend are patentable.

The McCann patent fails to teach the above-noted limitations recited in independent claims 1, 10, and 16. In particular, the McCann patent fails to disclose operating an electric motor using a sensor or a sensorless based control system depending on a rotational speed of the electric motor, as claimed by the Applicants. In contrast, the McCann patent merely discloses altering an estimation procedure based on a rotational speed of a rotor in a switch reluctant motor.

In contrast to the Applicants position, the Examiner asserts that the McCann patent does disclose the foregoing limitation in the paragraph recited below.

Referring to FIG. 7, it should be appreciated from the foregoing discussion that normal non-overlapping phase control (low speed) occurs in a first region generally about 37°, while phase advance control (high speed) initiates winding energization during a second region extending down to 30°. In examining the inductance-versus-rotor position graph in these two regions, it should be apparent that the slope (Column 10, lines 33-40)

The Examiner's interpretation of the foregoing passage of the McCann patent is wrong. The McCann patent distinguishes between non-overlapping phase control (low speed) and phase advance control (high speed) for the purpose of setting estimation parameters and not for switching between sensor and sensorless based control.

Accordingly, the McCann patent fails to disclose each limitation recited in independent claims 1, 10, and 17. As such, independent claims 1, 10, and 17 are patentable and nonobvious over the McCann patent and dependent claims 6-7, 11, 12, 16, and 18, which depend therefrom include limitations thereof, are patentable and nonobvious over the cited reference for at least the same reasons as the independent claims from which they depend are patentable.

**Rejection of Claims 8 and 9 Under 35 U.S.C. § 103(a)  
As Being Unpatentable Over The McCann Patent**

The Applicants respectfully submit that the McCann patent fails to provide any suggestion, motivation, or incentive for disclosing the above-identified features of independent claims 1, 10, and 17. Accordingly, the Applicants respectfully submit that dependent claims 8 and 9 which depend from independent claim 1 and include all the limitations thereof, are patentable and nonobvious over the McCann patent for at least the same reasons as the independent claim from which they depend from are patentable.


**Rejection of Claims 13-15 and 19-21 Under  
35 U.S.C. § 103(a) Over the McCann and Brandenburg Patents**

Applicants respectfully submit that the Brandenburg fails to provide any suggestion, motivation, or incentive for teaching the above-identified limitations of independent claims 1, 10, and 17, and therefore, fails to make up for the above-identified deficiencies of the McCann patent. Consequently, the Applicants respectfully submit that dependent claims 13-15 and 19-21, which depend from patentable independent claims 10 and 17 and include all limitations thereof, are patentable and nonobvious over the cited references for at least the same reasons that the independent claims from which they depend are patentable.

**Conclusion**

For the foregoing reasons, the Applicants respectfully submit that each rejection has been fully replied to and traversed and that the case is in condition to pass to issue. The Examiner is respectfully requested to pass this case to issue. The examiner is invited to contact the undersigned if it would further prosecution of this case to issue.

Respectfully submitted,  
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